

# The MANAGEMENT REVIEW

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# The MANAGEMENT REVIEW

APRIL, 1935

## Protection of Industry's Power Equipment

By DALE F. REESE, Vice President

*The Hartford Steam Boiler Inspection and Insurance Company*

IN 1860 a group of engineers in Hartford, Connecticut, members of the Polytechnic Club, met to consider the frequency with which boilers were exploding. At that time the public in general looked on these explosions as being of somewhat mysterious origin, and many fantastic theories were advanced in explanation of them. These Hartford engineers decided to investigate boiler explosions with a view of determining the causes, and from their findings they concluded that most explosions were due to very definite conditions or defects which could be detected in the incipient stages by men trained for that work.

The activities of these men were interrupted during the war but their study of means for detecting accident-producing conditions had been so fruitful that, about 1866, some of the engineers reached the conclusion that they could establish a regular inspection service along these lines and could, for a small charge, guarantee their inspection service by affording insurance against loss up to such amount as the client chose to select as his policy limit. In order to provide this guarantee in a legal and proper way, they decided to organize the Hartford Steam Boiler Inspection and Insurance Company. This was the beginning of the first corporate "safety" movement in the United States.

It is interesting to note that in establishing the name for this company the primary object in the minds of its organizers was inspection service and the word "inspection" was placed in the name ahead of the word "insurance."

Encouraged by the success in reducing the number of boiler accidents, and because of the public's general acceptance of the effectiveness of this accident prevention service, insurance company engineers undertook to develop next an inspection service which would prevent the explosion of fly-

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wheels on the steam engines which were then the prime movers for most industries. Again the accident prevention service was found to be most effective.

Some time later steam turbines came into use and after the explosion of one of these objects in the Middle West there was a public demand for accident prevention service and insurance in connection with this new prime mover. The engineers of the insurance companies realized that the principal hazards of a steam turbine were a combination of the hazards which they had previously been dealing with in connection with steam boilers and flywheels. The casing of the turbine was subject to explosion from internal steam pressure and the rotor, like the flywheel, was subject to explosion from centrifugal force. Inspection service was established on this class of equipment and insurance, of the kind now classified as explosion coverage, was made available.

In dealing with flywheel accidents the insurance engineers found that their accident prevention service was of such a character that in reducing the number of flywheel accidents it tended at the same time to prevent many other accidents to which engines were subject. Consequently, the service and insurance was made available for the entire engine unit, including the flywheel. This was the beginning of engine insurance.

Thus at that stage in the development of the business, accident prevention service and insurance was available for industry's principal power plant equipment other than electrical machinery. As the hazards of operating electrical machinery were somewhat different from those which insurance engineers had previously dealt with, there was some question as to whether or not as effective an accident prevention service could be established in connection with electrical machinery as had been previously provided for steam equipment. After considerable deliberation it was the judgment of these insurance engineers that an effective accident prevention service could be applied to this type of apparatus and about 1922 this service and insurance was made available to the public.

The judgment of the engineers as to the feasibility of applying their accident prevention service to this class of equipment is fully borne out by the experience since that time. The first year or two after this service was undertaken the accident frequency of insured electrical machines was one in 9.5. This means that on the average one in every nine and a half machines suffered an accident each year. As the insurance engineers gained experience in this particular line and were able to perfect the accident prevention service, this accident frequency was gradually improved until in 1933 (the latest year for which figures are available) it was 1 in 26. The real meaning of these figures is that, during the ten or twelve years included in the period under discussion, with respect to that part of industry which purchased this service, more than half of its electrical accidents have been



entirely eliminated. In this connection it is not sufficient to include in the consideration of the effect on industry merely the cost of making the repairs that would have been required if the whole accident frequency had been maintained. Consideration must be given also to those indirect results of accidents—the value of which cannot be adequately measured.

With the advent of electrical machinery insurance it became possible for the companies to broaden their coverage of steam turbines to include the electrical hazard. At the same time complete breakdown coverage was made available, including the stripping of blades and buckets. This rounded out the accident prevention service and coverage so that it was applicable to the principal objects used for the generation, transmission and utilization of power, but because of the manner in which the separate lines had been undertaken there were several different kinds of policies necessary to insure all kinds of equipment.

Changes in the coverages applicable to steam turbines during the short time that some of these coverages have been in effect, and the resultant smaller spread over these objects, make the accident frequency figures somewhat less complete than those in connection with electrical machinery insurance. However, they show very definitely that the accident prevention service in connection with steam turbines is effective. Insurance company records are full of cases where inspectors have found defective control mechanisms, inoperative speed limiting devices, hidden cracks in wheels and other parts of turbines and many other conditions which, if not detected, would have resulted in disastrous accidents.

To sum up the general question of accident prevention service in connection with power plant equipment, there can be no doubt but that this service does reduce both the number of accidents and the losses resulting from those accidents which cannot be prevented. If this were not a fact the demand for this service would have ceased long ago and the only justification for its continuance is the knowledge that the loss that would have resulted from the accidents it has prevented exceeds its cost.

Insurance companies have never claimed that insurance engineers were more competent operating engineers than those in charge of industrial plants, nor have they claimed that insurance engineers are more competent designers of power plant equipment than the manufacturers of such equipment. However, we do know beyond any possible contradiction that insurance engineers are more competent than either of these groups from the standpoint of detecting accident-producing conditions.

No field insurance engineer is any more effective than the organization behind him, but if there is a substantial organization supplying him with information and supervising his work he has the benefit of a broad experience with respect to accidents to all kinds of power plant equipment. This accident prevention service is not a "hit or miss" undertaking but rather one

based on actual facts and statistics. The insurance engineer is not guided entirely by codes or standards but to a great extent by his company's knowledge of the conditions which have been found by experience over a period of years to produce accidents.

For example, with respect to electrical machinery, the records show that 10 per cent of the failures result from the breakdown of insulation between conductors or between conductors and ground. Four per cent of the failures occur because of the breakdown between commutator bars or collector rings, while 13 per cent of the accidents occur because of breakdown of insulation between the turns of coils. It is also a matter of record that 26 per cent of the accidents result from lightning or line surges.

Information of this kind not only enables the inspector to look for these accident-producing conditions but also helps him to make clear to the operator the hazards that are involved unless unsatisfactory conditions are corrected.

In order for the home office of an insurance company to provide its field men with helpful information of this kind it is necessary that the home office organization be familiar with general power plant operation problems. Thus it is not uncommon to find representatives of home office staffs of some companies on committees of various engineering organizations and of organizations responsible for standards in connection with construction, installation and operation of power plant equipment. These home office engineers also take the initiative in research work designed to determine and correct the most frequent causes of accidents. All of the results of the home office research work on the part of a company equipped to handle such research are transmitted to its field engineers to increase the effectiveness of the accident prevention service.

In 1928 the entire method of handling these lines of insurance was revised and simplified insofar as policy forms were concerned. Boilers and pressure vessels were classed under the general heading of boiler insurance; wheels, engines, pumps, compressors, turbines and electrical machines were grouped in a class called machinery insurance.

At about the same time a single policy was introduced to apply to all classes of boiler and machinery business. The policy form used since then does not attempt to define the object insured nor the accident insured against. It contains the general insurance provisions, and the specific coverage for individual objects is accomplished by attaching to the form a schedule or schedules that deal with the kinds of objects to be covered.

To cover the field represented by boiler insurance there are eight kinds of schedules which may be briefly described as follows:

1. **Boilers (except cast iron boilers).** Used for steel boilers, both fire tube and water tube, for other fired objects such as sterilizers and coffee urns, and for unfired vessels generating steam, such as electric steam gen-

erators and steam evaporators. This schedule not only covers the boiler proper but may be extended to cover steam pipes. The coverage of Furnace Explosion is also optional.

**2. Cast Iron Boilers.** This schedule is used for the coverage of cast iron steam and hot water boilers and cast iron water heaters. Like the schedule previously described it may include steam pipes and Furnace Explosion. Because of the tendency of cast iron to crack there is a special optional coverage available applicable to this cracking hazard. This is in addition to the basic insurance pertaining to the explosion hazard.

**3. Unfired Vessels.** This schedule is for all kinds of unfired pressure vessels, irrespective of contents, except those used for generating steam. It is used also for such vessels as acid accumulators, steam accumulators, cookers, devulcanizers, digesters, feed water heaters, kettles, kiers, stand pipes and various kinds of tanks. This schedule provides for the coverage of cracking of cast iron parts but excludes the value of the contents unless such value is specifically insured.

**4. Economizers.** This schedule is used for all cast iron economizers and for those steel economizers which are not installed so that each economizer constitutes a part of a single boiler. As the majority of economizers insurable under this schedule are made of cast iron, it includes, as an accident, the cracking of cast iron parts.

**5. Refrigerating Systems.** This is used for refrigerating systems, regardless of the refrigerant used, and regardless of whether or not it is a compression or absorption system. In general, the system contemplated under this schedule consists of those parts under pressure of refrigerant exclusive of compressors and pumps.

**6. Auxiliary Piping.** Steam piping on the premises of the assured supplied by boilers of the assured may be included as part of those boilers but steam pipes are frequently found passing over property not representing premises of the assured. Such piping must be specifically insured. There are other kinds of piping about manufacturing plants, such as air pipe or water pipe in connection with condensers, etc. All such miscellaneous piping can be covered under this particular schedule.

**7. Residence Boilers and Vessels.** This affords blanket coverage on the steam, water and air vessels usually found in private residences. It covers all such vessels without specific designation but its use is restricted to buildings used for residence purposes and having not more than twenty heated rooms, including any heated garage used in connection therewith.

**8. Replaceable Service Tanks.** More and more manufacturing plants are using liquids and gases, such as ammonia, oxygen and hydrogen, purchased outside of the plant and furnished by means of small cylinders not owned by the assured but constituting an explosion hazard while they remain on the assured's premises. Because of the difficulty of designating these

tanks this schedule is available for blanket coverage on all such tanks on the assured's premises.

Because of the different characteristics of the various objects the kind of accident insured against under these boiler schedules is not the same in each schedule but, in general, the basic accident insured against is the sudden and accidental tearing asunder of the object or parts thereof due to internal pressure of the vessel's contents.

Eleven schedules are necessary to provide the coverage recognized as machinery insurance. They are described as follows:

1. **Engines, Reciprocating Pumps and Compressors.** This schedule provides for the coverage of steam engines, steam driven pumps, steam driven compressors, separately driven pumps and separately driven compressors. It is also used for internal combustion pumps and compressors of the internal combustion type.

2. **Wheels and Shafting (except gear wheels).** This is used for the coverage of balance wheels, pulleys and miscellaneous revolving objects, such as couplings, chipper disks and band saw wheels—as well as for shafting which is not a part of an engine, compressor, pump or other similar object.

3. **Gears.** This schedule is used for the coverage of gears and enclosed gear sets.

4. **Miscellaneous Machines.** Used for such equipment as fans and blowers, centrifugal driers and extractors, friction clutches, coal pulverizers, centrifugal pumps and compressors and hydraulic transmissions.

5. **Deep-Well Pump Units.** This schedule is used for the coverage of deep-well pump units which are directly connected to their driving motors. Coverage applies to the entire unit, including the motor.

6. **Steam Turbines.** Used to cover steam turbines of all kinds, regardless of the driven object. The schedule affords four kinds of coverage, Breakdown, Limited Breakdown, Combined and Explosion.

7. **Water Turbines.** This schedule covers water turbines of all kinds irrespective of the driven object. It affords four kinds of coverage, Breakdown, Limited Breakdown, Combined and Explosion.

8. **Rotating Electrical Machines (except motors), Transformers and Induction Feeder Regulators.** Used for the coverage of electric generators, synchronous or rotary condensers, dynamotors, transformers and induction feeder regulators.

9. **Electric Motors.** This is for the coverage of electric motors, a separate schedule being necessary for these objects because they are classified by use and also involve the coverage of motor control equipment.

10. **Miscellaneous Electrical Apparatus.** This schedule is for the coverage of switchboards, bus structures and electrical apparatus not otherwise classified, such as capacitors, cables, constant current transformers, mercury arc rectifiers and magnetic clutches.



11. **Small Refrigerating and Compressing Machines.** Intended for the coverage of refrigerating and compressing units driven by motors of 3 h.p. or less. The schedule covers the complete unit including the driving motor.

Breakdown coverage is available under all of these machinery schedules and the Breakdown definition of accident in all schedules except the schedule for Wheels and Shafting reads as follows:

"Accident" shall mean a sudden and accidental breaking, deforming, burning out or rupturing of the object or any part thereof, which manifests itself at the time of its occurrence by immediately preventing continued operation or by immediately impairing the functions of the object and which necessitates repair or replacement before its operation can be resumed or its functions restored.

In the schedule for Wheels and Shafting this definition is modified by the exclusion of the words "deforming" and "burning out" because, obviously, they do not apply to such objects.

This definition is intended to include the ordinary operating accidents which are sufficiently serious to manifest themselves at the time of their occurrence, but to exclude occurrences of the kind that would normally be recognized as maintenance. It is assumed that any breaking, deforming, burning out or rupturing that is not sufficiently serious to make itself manifest at the time of its occurrence is an item of maintenance and not one for insurance protection. In addition to these qualifications the definition provides that the breaking, deforming, burning out or rupturing must be sudden and accidental. Slowly developing cracks and other defects which appear gradually are not contemplated as accidents under this class of insurance.

In addition to the Breakdown coverage applicable to steam and water turbines there are also three restrictive coverages for which the accident definitions are as follows:

**Limited Breakdown Coverage.** "Accident" shall mean a sudden and accidental breaking, deforming, burning out or rupturing of the object or any part thereof, which manifests itself at the time of its occurrence by immediately preventing continued operation or by immediately impairing the functions of the object and which necessitates repair or replacement before its operation can be resumed or its functions restored, but the short-circuiting, burning, breaking or loosening of electrical conductors or their insulation or of the band wires or wedges shall not constitute an accident.

This coverage is applicable only to turbines driving electric generators and is similar to Breakdown coverage previously referred to except that the electrical hazard is eliminated both as an accident and as a loss.

**Explosion Coverage.** "Accident" shall mean a sudden and accidental

tearing asunder of the object or any part thereof caused by pressure of steam therein, or a sudden and accidental disrupting of its rotating members into two or more parts, but the breaking, cracking, stripping or loosening of gears or couplings or of movable or stationary blades or buckets or of shroud rings or other blade or bucket fastenings, or the short-circuiting, burning, breaking or loosening of electrical conductors or their insulation or of the band wires or wedges shall not constitute an accident.

This is the original coverage designed for steam turbines and represents a combination of boiler and flywheel insurance, the steam casing being insured against rupture from the internal pressure of steam and the rotor being insured against disruption from centrifugal force. It is the most restricted form of coverage and excludes stripping of blades and buckets and all electrical hazard.

**Combined Coverage.** "Accident" shall mean a sudden and accidental tearing asunder of the object or any part thereof caused by pressure of steam therein, or a sudden and accidental disrupting of its rotating members into two or more parts, but the breaking, cracking, stripping or loosening of gears or couplings or of movable or stationary blades or buckets or of shroud rings or other blade or bucket fastenings, shall not constitute an accident; and as respects any generator forming a part of the object, not including any shaft (with its bearings), whether continuous or consisting of sections connected by couplings, which is common to the generator and to the driving steam motor with which it forms a direct-connected unit, "Accident" shall mean a sudden and accidental breaking, deforming, burning out or rupturing of the said generator or any part thereof, which manifests itself at the time of its occurrence by immediately preventing continued operation or by immediately impairing the functions of the said generator and which necessitates repair or replacement before its operation can be resumed or its functions restored; and clause (a) of Section 1 is changed to read "(a) loss from fire outside the object (or from the use of water or other means to extinguish fire)."

This coverage is applicable only to turbines driving electric generators and is the combination of Explosion coverage on the turbine unit and Break-down coverage on the generator.

These schedules have been amended, effective as of May 1, 1935, so as to eliminate the pressure and speed restrictions which previously appeared in the schedules affording boiler and machinery insurance. This apparent broadening of the coverage is not intended to change in any way the requirements of the companies that objects must be operated at safe pressures and speeds, but rather to maintain such operation under safe conditions through the accident prevention service of the field men rather than as a policy limitation.

The coverage available under boiler and machinery insurance (appli-

cable to all the objects previously referred to) may be divided into the following classifications:

#### **Property**

1. Property of Assured
2. Expediting
3. Liability for Property of Others

#### **Personal Injuries**

1. All liability except that covered under Workmen's Compensation law
2. Liability under Workmen's Compensation law

#### **Indirect Loss**

1. Use and Occupancy
2. Outage
3. Consequential Damage

#### **Property Damage Insurance**

The fundamental coverage under a boiler or machinery policy applies to property that may be damaged as a result of the accident insured against. The general coverage of property damage may be divided into three classes.

##### **1. Property of Assured**

Section I of the insuring agreement of the standard policy provides for the payment of direct loss on the property of the assured and specifically excludes indirect loss of all kinds. In order to avoid overlapping coverage with fire insurance the boiler and machinery policy excludes loss from fire following an accident and all loss from an accident caused by fire.

##### **2. Expediting**

The property loss referred to in the preceding paragraph relates to the actual cash value, at the time of the accident, of the property destroyed. Frequently there is an urgent need for the return of the damaged object to service at the earliest possible moment, thus necessitating overtime work by repair men and special means of transportation for parts. To provide for this expense Section II of the insuring agreement of the policy contains an agreement to pay for such items of expense incurred by the assured, subject to a limit equivalent to the amount of the direct property damage if such damage does not exceed \$1,000. If the amount of direct property damage exceeds \$1,000 the limit for expediting coverage is \$1,000 plus 25 per cent of the amount by which such actual damage exceeds \$1,000. Expediting coverage is included in a policy for an additional charge.

### 3. Liability for Property of Others

Section III of the insuring agreement of the standard policy provides for paying the assured for such amount as he becomes obligated to pay as a result of direct damage to property of others including liability for the loss of use of such damaged property. Fire insurance would not specifically cover such other property, unless fire ensued. In order to afford the assured full protection under this liability feature, Section III does not contain any fire exclusion and this liability feature is applicable to loss arising out of an accident caused by fire.

### Personal Injury Insurance

Notwithstanding the fact that general personal injury insurance is carried by the average plant operator there is still some demand for personal injury coverage under boiler and machinery policies. To meet this demand such coverage may be afforded in connection with boiler or machinery policies for a small extra charge, and under the new coverage available as of May 1, 1935, this personal injury insurance is classified as follows:

#### 1. All Liability except under Workmen's Compensation law

The intent of this coverage, which is afforded under Section IV of the insuring agreement of the standard policy, is to provide for the payment of such amounts as the assured may become obligated to pay on account of personal injuries sustained by any person, whether employee or member of the public, as a result of the accident insured against but liability or obligation under the Workmen's Compensation act is specifically excluded. The old form of coverage attempted to make a distinction between a person employed by the assured and one not employed by the assured. The change under the new form eliminates all of the difficulties arising out of the question of employment. The new form also omits any limit per person so that the amount of personal injury insurance that is available under the policy is applicable to loss from the death or injury of one person or of several persons.

#### 2. Liability under Workmen's Compensation law

Variations in the Compensation laws do not permit any uniform procedure in connection with this coverage in all states. In some states no insurance can be afforded in connection with boiler or machinery policies under the Workmen's Compensation law. In other states some limited coverages can be afforded while in others the coverage can be afforded only under certain conditions for self-insurers. Wherever some form of compensation coverage can be afforded it must be granted by the use of a special endorsement



setting forth the particular limitations for a given state.

Personal injury coverage in boiler and machinery policies is always written as excess insurance over any other personal injury coverage which the assured may have on the same risk. However, if his other insurance is written with a deductible limit, the boiler and machinery personal injury coverage will apply with respect to the liability below that limit. In other words, it covers the assured for that portion of his personal injury liability for which he is not covered by his other insurance.

### Indirect Loss Insurance

In addition to the loss resulting from direct damage to property of the assured and of others, there is the indirect loss sustained by every operator of power plant equipment when an accident occurs to interrupt the usual procedure of business. To provide for some of these indirect losses there is available, in connection with boiler and machinery policies, the following three forms of indirect damage insurance.

#### 1. Use and Occupancy

This form of insurance as written in connection with boiler and machinery policies is intended to apply to loss resulting from the reduction or stoppage of income from the business normally conducted on the specified premises. Insurance is written on a valued form with a specified daily indemnity payable for total prevention following an accident, and providing for the payment of a proportionate amount for partial interruption. The proportion of the payment is based upon the reduction of business resulting from the accident. In the standard form the measurement of current business at the time of the accident, from which the reduction is measured, is determined by an average of three days selected by the assured in any calendar week of the eight weeks preceding the accident. For the average run of business this basis is fair and reasonable and provides a very easy method of determining the amount to be paid under the endorsement. There is available an optional form providing for the measurement of current business at the time of the accident as "full production," thus leaving the determination of value of current business to an adjustment at the time of the loss. This form is generally considered indefinite and unsatisfactory except under special condition.

#### 2. Outage Insurance

It was pointed out in the previous paragraph that Use and Occupancy insurance is intended to apply to loss of income resulting from an accident as insured against, but it frequently occurs that

the only loss sustained by an operator in the event of an accident to certain machines would result from the increasing cost of maintaining normal business without the damaged object. To cover such specific losses, Outage insurance was made available a few years ago. This insurance provides for the payment of an hourly indemnity for each working hour that the insured object is not available for service because of the accident insured against. This coverage would apply to the increased cost of handling material by hand following the failure of a crane motor, the increased cost of purchasing outside power in the event of a failure of the assured's main generator, or the increased cost of operating obsolete, inefficient standby equipment following an accident to modern, highly efficient machines.

3. Consequential Damage.

This class of insurance applies to that indirect damage to property resulting from lack of power, light, heat, steam or refrigeration. It would apply to such cases as flowers in a greenhouse that might freeze as the result of a boiler accident or goods in cold storage that might spoil because of an accident to refrigerating equipment. It may also be used in some other special application such as indemnity against excess demand charges required by some public utility company when a sudden demand is made for utility power following an accident to an insured generator or other electrical machine.

Under the new policy effective May 1, 1935, all of the coverages listed above under the general headings of Property Damage and Personal Injuries are subject to only one policy limit referred to in the policy as Limit per Accident but the amount of such limit applicable to the different classes of insurance is restricted by a definite order of availability which is set forth in the policy as follows:

1. Loss on Property of the Assured (Section I of the policy)
2. Expediting Insurance, if covered (Section II of the policy)
3. Loss from Liability for Property of Others (Section III of the policy)
4. Loss from Liability for Personal Injuries, if covered (Section IV of the policy)

It will therefore be understood that if an assured is under-insured and the limit of the policy is only sufficient for the restoration of the assured's property under Section I of the policy there would be no insurance available for the other kinds of loss even though they were included in the coverage as originally written. This is a feature frequently overlooked in the purchase of Personal Injury coverage under a boiler and machinery policy because reliance is placed upon this coverage as added protection to the assured while

the amount of insurance purchased is inadequate for more than the property loss. The policy limit should not only be adequate to cover possible loss under Sections I and III of the policy which represent the basic coverage but this amount should be increased for each kind of special coverage that may be added.

Each one of the three forms of indirect damage insurance is written with its own limit of liability and the limit under each one of these special endorsements is available regardless of the Limit per Accident afforded under the basic policy for property damage and personal injuries.

There seems to be a general public acceptance of the value and need for steam boiler insurance. It must be obvious from the facts previously stated that accident prevention service is just as effective and valuable with respect to machinery objects as to boilers and pressure vessels. In most cases the threatened loss from an accident to a machinery object is as great or greater than that in connection with boilers and pressure vessels.

One of the great difficulties experienced in connection with machinery insurance is that it has been misunderstood and, in general, has not been properly applied to individual risks.

Boiler and machinery insurance are not lines of insurance that can be sold as such. To provide broad coverage for all kinds of power plant equipment before such insurance can be properly bought or sold, due consideration must be given to the threatened loss from an accident to each individual machine, the value of accident prevention service to prevent or reduce such accidents and the general method of operation. An insurance company cannot attempt to provide maintenance service and therefore the first important factor in the analysis of a plant's needs is to determine a dividing line between maintenance and insurance needs. A machine that is considered by one concern as representing merely a maintenance problem may be the most important machine in another concern's operation. A fractional horse power motor operating an oil burner in a private residence is an object of considerable importance to the owner of that residence and is one on which expert insurance service is desirable. On the other hand, the same motor in a large industrial plant of central station would not be a factor at all in the plant operation.

Ordinarily those objects of the smaller sizes, repairs to which are handled in a plant as a matter of routine maintenance, can hardly be considered for insurance except in special cases where an individual machine is a key machine in a certain process and inspection by a disinterested party is desirable to reduce to a minimum the possibility of accident which could cause a stoppage in that particular process. Indemnity afforded under the policy is not of any particular value in connection with this class of machines but frequently the inspection service is worth the entire premium charged for the object.

Another reason why machinery insurance is not fully understood by the operating force of many plants is that the subject is presented to and discussed with non-technical representatives of the assured by non-technical insurance salesmen without an opportunity for the technical representatives of the two interests to discuss the needs and the available means of meeting those needs. Then, too, the accident frequency in the machinery line is much higher than in the boiler line and in the absence of machinery insurance the losses resulting from these frequent occurrences have been included for years in a maintenance account. The operators have failed to recognize that in many cases the insurance of these objects would merely transfer a sum of money from the maintenance account to the insurance account and that the accident prevention service accompanying this class of insurance would be obtained by the operator with little, if any, additional expense.

Much of the power plant equipment insurable under boiler and machinery policies constitutes a substantial investment on the part of the operator. In many plants this valuable equipment is operated by local engineers under the general supervision of some chief engineer at a main office some distance from the plant. In such cases the inspection service is not only valuable from a standpoint of its effectiveness in the prevention of accidents but, with its periodic reports on the physical condition of the insured equipment, it provides the chief engineer with a constant audit of this valuable investment by disinterested persons. The service not only acts as a source of information for the supervising engineer but it is an incentive for the plant operators to keep the equipment in first class operating condition so as to avoid any unfavorable comments by the insurance engineers.

Last year industry paid approximately \$12,000,000 for boiler and machinery insurance, and of this practically one-half was spent in accident prevention service. This service undoubtedly prevented accidents which, if not prevented, would have cost industry much more than the amount paid for the service. Without it the particular group of industry that had this protection might have paid \$15,000,000 or \$20,000,000 instead of \$12,000,000. By the same token, it is anybody's guess how much uninsured plants are still contributing unnecessarily to this economic waste because they are without the expert specialized accident prevention service which would not only reduce their direct losses but which would cut down the many difficult-to-measure indirect losses which are bound to occur when any process of production is interfered with.



## THE MANAGEMENT INDEX

### Abstracts and News Items

#### GENERAL MANAGEMENT

##### Housing—The Keystone of Recovery

During the first five months of 1934, 1,350,000 families, a total of 6,000,000 people, formerly employed in construction and kindred lines, were receiving government aid. This situation was due to the fact that general construction had dropped from \$11,000,000,000 to the amazing present annual level of \$3,000,000,000. The Government's first concern was for the millions of buildings that suffered from lack of care and repair; second for the obvious need of new construction; third, to remove the credit jam which faced the average property owner. The National Housing Act is designed to facilitate this process by rehabilitating mortgaged properties and by encouraging repairs and improvements. It is the keystone of present recovery activities. By Albert L. Deane. *Economic Forum*, Winter, 1935, p. 425:12.

##### The Perennial Cry of Bureaucracy

The author, Assistant Secretary of Commerce, does not think that we as a nation need yet worry over the cry of bureaucracy, which, he says, has been heard steadily for the past fifty years against most of the important legislation enacted in this country. He explains that as public business increases in volume through the mere increase in the population of the community, the amount of detail which can be directly handled by the legislative body itself will necessarily decrease, and correspondingly the amount of discretion which will be exercised by administrative officials will necessarily increase. This, he claims, is a plain matter of physics and physiology,

wholly apart from considerations of constitutional law or theory.

To disprove the dangers of bureaucracy, he gives the following figures: The total number of persons employed today in the combined service of the local, state and federal governments is 3,000,000, approximately 2½ per cent of our population. If the cost of government today is high, it is not due to payment for an army of officials. In the case of the Federal Government, approximately 30 per cent of the ordinary budget is for interest payable to bondholders whose funds financed the Great War; 27 per cent is paid out to veterans and other recipients of war pensions; about 16 per cent goes to the maintenance of the army and navy; and the payroll of officials constitutes hardly 10 per cent of the total outlay. Mr. Dickinson closes with the admonition that if we constantly harken to the charge of bureaucracy, we may become deadened to the danger, should the danger really come. By John Dickinson. *The Yale Review*, March, 1935, p. 448:16.

##### The British Movement for Industrial Reconstruction and the Control of Competitive Activity

Great Britain provides us with some highly interesting examples of the concrete application of the policy of controlled competition. Far from allowing recovery to rest upon the unrestrained operation of normal economic forces, British industrialists have deserted their traditional policy of individualistic competition. The Government has played a vigorous role in these recovery schemes: in the coal industry and in agri-

culture, control was instituted by definite Parliamentary action; in iron and steel, the Import Duties Advisory Board has been active; the cotton project was encouraged by the Economic Advisory Council; ship-builders were greatly assisted in financing their program by the Bank of England; the Imperial Chemical Industries, Ltd., was formed under the supervision of the Board of Trade.

The elimination of price cutting has been successfully achieved; control of output raises considerable skepticism as to the ability of centralized control to assist materially in restoring profitable operations to a depressed industry; and elimination of moribund firms has not been satisfactorily solved. British experience shows that the successful attainment of these broad objectives of control would necessitate a profound recasting of our industrial structure by extending centralization to the point of complete financial unification. By Arthur F. Lucas. *The Quarterly Journal of Economics*, February, 1935, p. 206:30.

#### Politics and Radio Regulation

The Federal Communications Commission, which the 73d Congress established to take the place of the Federal Radio Com-

mission, is now planning legislation to recommend to the present Congress. A decision on control of the air is wanted by the radio industry itself, which is now entirely dependent upon its advertisers. Harassed by political pressure and sectional rivalry, as well as by the demands of organized labor, educational bodies and many other types of propagandists, the Federal Radio Commission is expected to chart a middle course between Government ownership and domination of radio by business. By E. Pendleton Herring. *Harvard Business Review*, January, 1935, p. 167:12.

#### Why Industry Hesitates

"No private business can compete where the Government is not only its competitor but makes the rules and enforces them."

Here is a review of the impediments to industrial confidence and recovery together with an examination of some of the probable results if the Government continues and expands its policy of reviving business by national ownership and operation. By Forney Johnston. *Nation's Business*, February, 1935, p. 25:5.

## FINANCIAL MANAGEMENT

#### The Road to Recovery

This article has been prepared especially with reference to the problem of exchange stability and the restoration of the International Gold Standard. Starting with the breakdown of the International Gold Standard, with prices and economic developments in gold and sterling countries, the author considers how costs are affected by a fall of prices, and the divergence between costs and prices. He feels that deflation fails to restore economic equilibrium and argues for an international monetary system. It seems to him that an agreement between the United States of America and the Sterling Group would win the battle against instability by minimizing the dan-

gers to the economic and social structure of violent changes in the purchasing power of money and also by avoiding the social injustices thereby inflicted. By Sir Henry Strakosch. *Economic Forum*, Winter, 1935. Section I. 70 pages.

#### Use of Credit in Security Speculation

A close relationship has developed in this country between the stock market and the money market because of (1) the widespread practice of margin trading in securities and (2) the need, especially under a system of small unit banks, for a liquid money market where banks may employ reserves and temporary surplus funds. Wide fluctuations in the volume of street loans with

changes in speculative activity have been a stabilizing influence when they offset opposite movements in volume of credit used by business customers of banks; but from 1922 to 1927 street loans increased along with other loans and investments of banks. The speculative movement was not checked by limitations on the supply of money in 1928 and 1929, and brokers obtained loans from non-banking lenders.

More effective control of stock-market credit is necessary for business stability because of the close interrelationship between stock market and money market in this country, which gives stock-market operations an unduly important role in influencing not only the rate of expansion and contraction in the volume of credit but also the channels through which that credit is put into use. Recently new measures have been adopted to control these tendencies; their effectiveness remains to be tested. By Woodlief Thomas. *The American Economic Review*, March, 1935, p. 21:10.

#### The Problem of Monetary and Economic Stability

There is a wide divergence of views as to the cause of the range and variations in the price level. After an exhaustive study, the author says that in the last hundred years at least there has been little evidence of wide variations in the supply of commodities—save in war times and in the last four years. He further finds that the effects of inventive discovery and technological improvement have spread with singular evenness over a wide range of industries, with the result of singularly little change in the relative "costs of production" in the great majority of cases, and that the main long term movements in the prices of most great basic commodities and therefore in commodity price indexes have little or no discoverable consistent relation with the commodities themselves.

While we cannot control the colossal volume and variety of production or trade, nor directly fix or legislate the price level, there is one factor which as the high vari-

able can be restrained—the volume of credit. If the powers of restraint are adequate, we need have no depressions because, without credit expansion, booms and over-speculation are impossible. By Carl Snyder. *The Quarterly Journal of Economics*, February, 1935, p. 173:32.

#### Stocks vs. Bonds As Life Insurance Investments

The Sun Life Assurance Company of Canada is the only major life insurance company known to the author with a large proportion of its portfolio in common stocks. In contrast, the Metropolitan Life Insurance Company has a notable bond portfolio.

A case study of these two divergent types of investment on the value of these investments during a depression brought out interesting revelations. Authorized rather than book values were used as a basis of comparison with the conclusion that so long as tests of actuarial solvency are made in dollars rather than in purchasing power, and only very slender margins of surplus are available as protection, well-selected bonds, and possibly preferred stocks, will probably be regarded as having an advantage over well-selected common stocks for life insurance reserves. By Harry G. Guthmann and Ernst A. Dauer. *Harvard Business Review*, January, 1935, p. 237:11.

#### State and Local Budgetary Methods

The situations in many states and local communities at the present time are making it necessary for public officials and citizen groups to devote increasing attention to fiscal affairs. This report is a review of the subject in the light of new needs and methods and deals in the main with basic and generally applicable features. The subject is treated under the following headings: Growth of improved budgetary practice; Essentials of an effective budget system; Formulating the budget; The budget document; Presentation and adoption of the budget; Carrying out

the budget; Overlapping units of government; Relations between state and local governments. *A Report of the Committee on State and Local Taxation and Expenditures. Chamber of Commerce of the United States*, February, 1935, 32 pages.

#### What Makes a Modern Credit Man?

A credit man's job is the most important sales job in the organization. He can either make or break the customer's good will for the business.

The credit man must be a keen judge of *ment*, February, 1935, p. 65:3.

#### Insurance\*

##### The Law and the Insurance Broker

This article sets forth the position of the broker in relation to the insured. Numerous cases are cited. In one, where a broker who was instructed to place insurance in old line stock companies, departed from instructions and delivered policies in cooperative companies, the insured could not escape liability for assessment assumed on the acceptance of the policy.

In general, the broker is employed to effect insurance and to act for his principal, the insured, in obtaining modification of the policy, but he has no authority to act for the insured in destroying the contract. He is not an insurer of the financial conditions of the company from which policies are obtained, but he undertakes to use reasonable care and judgment in procuring good contracts of indemnity. By Louis J. Wolff. *The Insurance Broker-Age*, January, 1935, p. 14:3; February, 1935, p. 16:3.

##### Compulsory Automobile Insurance

A summary of various types of responsibility laws, compulsory automobile insurance and compulsory compensation for motor vehicle injuries is given, with particular reference to the Massachusetts Act. This law which became effective January 1, 1927, was exceptional in type and in many respects has not been satisfactory. Responsibility laws have been adopted in

human nature. He must be quick to recognize honesty and dishonesty. He must have a financial and accounting background. He must know the economic conditions in every region where his firm does business and he must make use of the agencies for the interchange of credit information. He must *not* have any racial or religious prejudices. By Frank B. Copley from an interview with Henry H. Heimann. *System and Business Manage-*

about 29 of the other states, and provinces of Canada, with varying results. The article also describes the model bill for this type of legislation formulated by the American Automobile Association. By John H. Parks. *The Weekly Underwriter*, February 16, 1935, p. 344:3.

##### Reformation of Insurance Policy

An interesting case was decided by the Supreme Court of Pennsylvania, November 26, 1934, *Broida vs. Travelers Insurance Company*. The insured decided to remodel a building and applied to the insurance company for public liability insurance to protect him and tenants against claims for damages during the time the work was to be done. Within a few days an accident occurred as a result of negligence of an employee of the insured, but the insurers denied liability on the ground that the insured was doing the work himself. This was not in accordance with the policy, which provided that the work was to be done by an independent factor. The injured brought action against the employer, receiving a judgment for \$6,500, and the action was brought by the insured to recover from the Travelers.

At the trial, the insured testified that he explained to the agent of the insurers what he intended to do and had hired men to do the work, and wanted a policy to protect

\* Insurance abstracts are contributed by P. D. BETTERLEY, Assistant Treasurer, Graton & Knight Company.



him. The agent stated he knew what was wanted and that protection was immediately effective.

There was no doubt that the parties mutually agreed upon the terms of the contract, but through some error, the kind of policy agreed upon was not delivered. The court held that the circumstances and statement of the insured furnished proof that protection had been ordered and paid for. Because a mistake had been made in the kind of policy delivered it did not grant to the defendant company the right to deny liability. *Insurance Decisions*, February, 1935, p. 347:2.

#### Adjustment of Mercantile Losses Under Transit Policies

One of the differences between inland marine coverages and other forms of insurance is that consideration is given by the

underwriter to possible subrogation at the time the policy is written. Immediate notice should be given to the carrier of a loss, and it must be sufficiently definite so that the carrier cannot argue that he did not know about the particular loss claim made by the shipper.

The article discusses the question of values and adjusting merchandise losses, whether selling price should be the basis of settlement. It is contended that when the shipper has immediate knowledge of such a loss and the property is promptly replaced from stock, the shipper does not suffer a loss of profit, salesman's commission and other expenses. It is pointed out that this subject is frequently a cause of dispute. Circumstances may alter cases, but it is wise to have a definite agreement with the insurer. *The Eastern Underwriter*, February 15, 1935, p. 33:1.

## OFFICE MANAGEMENT

### Organization: *Job Analysis, Employment, Pay, Tests*

#### The Emergence of a New Public Employment Service

For three years, from 1931 to 1934, the Public Employment Center of Rochester was regarded by the New York State Employment Bureau as a demonstration in methodology. Financed by several foundations, it enjoyed the support and cooperation of many civic and social groups and a sympathetic press. Feeling that the old public employment office was poorly equipped, with insufficient personnel, antiquated location, forms and filing methods, etc., the Rochester demonstration unit secured a bank building; increased its staff from 16 to 28 members who were further trained by reading courses, lectures and the conference method; developed the use of volunteers and launched itself on a broad and ambitious program.

The first half of the book deals in great detail with the set-up and philosophy actuating the Center, how general facts about the area were arrived at, what an analysis

of the population revealed, and into what divisions and subdivisions the work was finally allocated. The last half of the book is a factual self-analysis, illustrated with a great many charts. By Jess T. Hopkins. *Distributed by the Director of the New York State Employment Service, 124 East 28th Street, New York, N. Y.* 345 pages.

#### Practical Employee Ratings

A description of the experience of a utility company with rating procedure. It was found that: 1. Formal rating devices do not always reveal accurately the true attitude of the supervisor toward an employee. As a corollary, the chief fault of formal procedure appears to be in the assignment of hard and fast weightings to given qualities, irrespective of the supervisor's views as to the importance of such qualities in the scheme of things. Further, various patterns of merit and demerit may result in the same score, which confuse statistical interpretation.

2. A fair estimate of the standing and acceptability of employees may be gained from an approach which permits the supervisor to express himself in his own words. This requires a process of educating the supervisor to support his position by facts so far as possible. Coarse measures of general standing and comparative value may be obtained for statistical purposes with little difficulty, and furnish acceptable criteria. By Guy W. Wadsworth. *The Personnel Journal*, February, 1935, p. 263:7.

#### **Cultivation of Company's "Juniors" Produces Harvest of Ideas**

"A little over two years ago," writes the president of McCormick & Company, Manufacturing Chemists (Spices, Teas, Flavor-

ing Extracts), "I was confronted with added administrative responsibilities. In as much as it was obviously sound business to release the older members of the board for broader executive work and for travel, so that they could meet the trade, study conditions, and map out policies, and being greatly interested in young men, I had the idea that it would be a good policy to develop our juniors for greater administrative responsibility.

"In 1933 our business jumped 9.6 per cent; in 1934, 16.4 per cent. Our profits in 1933 were ahead of 1932; and in 1934 they showed a considerable increase over 1933."

Mr. McCormick attributes this success to "the Jr. Execs," with the splendid cooperation of the Senior Board. By Charles P. McCormick. *Executives Service Bulletin*, March, 1935, p. 3:3.

#### **Space: Location, Equipment, Arrangement**

##### **Why We Can Ship Orders Within 24 Hours**

The B. F. Goodrich Company has found that the largest savings and the most far-reaching benefits have come from the use of duplicating equipment. Orders are written but once and master copies are written at the various branches, instead of pro-

ducing them by copying the order after its receipt at the factory. Now practically every order received by noon is shipped the same day, while afternoon orders are shipped the next day. This promptness naturally results in greater customer satisfaction. By H. V. Browne. *System and Business Management*, February, 1935, p. 74:4.

#### **Records: Forms, Charts, Cards, Files, Statistics**

##### **How We Keep a Record of Installment Accounts**

Installment selling has grown at a tremendous rate since the World War and has brought about special accounting practices, varying according to the class of business. A description of the method and form used by the Mississippi Power & Light Company in keeping records of their installment accounts is here described. Two illustrative forms accompany the article. The first is the old duplex ledger sheet which required 16 operations to complete the entry on an installment account, the second shows the new form which requires but 8 operations. By Wilson S. Brown. *System and Business Management*, March, 1935, p. 21:3.

##### **How Should the Cost of Goods Be Figured?**

The real profit earned by any company selling from an inventory may be greatly distorted by improper averaging of the cost of goods.

Here is a method called the cumulative method, which gives more precise figures and which corrects automatically certain classes of mistakes in addition to possessing other advantages. All receipts, or debits, have both the quantities and the amounts totaled up and the average cost calculated for these cumulative totals. All deliveries, or credits, have the quantities totaled up cumulatively, the same as receipts, and the value of these quantities is

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calculated by multiplying the latest cumulative total by the latest average cost, shown on the receipt side. The value of deliveries for any period, such as a month, can be obtained by subtracting the cumulative total at the beginning of that period from the cumulative total at the end. Balances or

inventories can be obtained by subtracting the cumulative total of deliveries from the cumulative total of receipts. Several examples of this method are described and illustrated in the article. By Alexander Bac. *System and Business Management*, March, 1935, p. 23:2.

## PRODUCTION MANAGEMENT

**General:** *Promotion, Organization, Policy, Development*

### Restriction of Production and Initiative Under the N.R.A.

There are four particular devices written into the N.R.A. which the author discusses in this paper: First is the limitation upon machine or plant hours; second is the allocation of production quotas; third is the control of inventories; and fourth is the restriction of investment in new equipment. He feels that the present status of restrictive provisions in codes must be regarded as highly unsatisfactory though of necessity neither temporary nor evanescent, and contrasts in a highly stimulating way the manner in which, under the anti-trust laws, industry was compelled to compete and, under regulated capitalism, is now compelled to cooperate. By Paul T. Homan. *Bulletin of the Taylor Society and of the Society of Industrial Engineers*, January, 1935, p. 65:5.

### The Evaluation of Industries

In the past, industrial engineers have frequently been called upon to appraise the value of the tangible assets of an industrial enterprise; more recently, to estimate the value of the intangible assets such as organization, management and personnel. It is comparatively simple to study the technical factors in an evaluation. The economic factors are more difficult to appraise because the economist and the engineer have not enjoyed a close relationship, the economist dealing with large aspects on a national scale and the engineer with more specific, individual instances. Professor Rautenstrauch thinks that if the in-

dustrial engineer evaluates industry in more inclusive terms, with regard to its impact on the structure of the national economy and an understanding of all the forces which operate in our industrial economy, he will do a big part in building the new civilization. By Walter Rautenstrauch. *Bulletin of the Taylor Society and of the Society of Industrial Engineers*, January, 1935, p. 54:7.

### Rebuilding the Industrial Strength of a Community

When a large industrial organization decided to close its Elmira plant the people decided to form an organization which would give financial assistance to Elmira industries, thus encouraging industrial activity and increased business within the city. The result was the formation of Elmira Industries, Inc., whose work in the interest of local industrial development has already been productive. In this article, the author discusses the organization of this body, describes its technical research work, and tells how funds have been obtained and how they are being administered. By S. G. H. Turner. *Executives Service Bulletin*, February, 1935, p. 7:2.

### How Fixed Responsibilities Improved Service to Customers

In this article the general superintendent, mechanical production division, The B. F. Goodrich Company, describes the various responsibilities of the five main organization groups which are under the general superintendent's supervision. For example

—the technical group develops and designs the product and writes the specifications for its manufacture. It must then stand ready to deal with various problems of construction and materials that come up in manufacture. And so with the four other organization groups—the staff group, production control group, waste control or materials conservation division and specification service division. Each have their definite responsibilities making it easy properly to allocate credit or blame. By G. L. Matthias. *System and Business Management*, March, 1935, p. 10:6.

#### The Fore-Man as the Human Problem Engineer

The word "Fore-Man" as here used means "not only the foremen who are so

called in industry but also all other minor executives such as department heads who stand next to the working force and who, therefore, handle workers directly in carrying on the work of industrial and commercial establishments." This bulletin discusses human engineering problems involved in the handling of individual men and not of organizations of workers. In Part I of "The Human Engineering Formula," the four steps are described which a Fore-Man should use in attacking any human problem in his shop. In Part II, on "Using the Engineering Formula," the detailed strategy and procedure to be followed in applying the formula to any human trouble are discussed. *Employer-Employee Co-operation, Bulletin Number Ten "A,"* February 11, 1935. 10 pages.

#### Industrial Economics: Labor and Capital, Legislation, Wage Theory, Immigration

##### High Mortality Rates of Coal Miners

Diseases of the respiratory system cause a high rate of mortality among both anthracite and bituminous-coal miners, according to a study by the United States Public Health Service. Among anthracite miners a higher relative mortality was shown for respiratory tuberculosis than among the general population. Rates for nonrespiratory diseases did not show any significant differences between miners and the other groups, although somewhat higher rates were shown among miners in this country for certain of the so-called "degenerative diseases." *Monthly Labor Review*, January, 1935, p. 88:4.

##### Our Federal Civil Service

About 5,000 workers a month are being hastily added to the Federal pay roll in the Government's attempts to meet the complex emergencies it has been called upon to handle in agriculture and in industry. Not only as a matter of party strategy but also because the Civil Service Lists could in no way be expected to contain sufficient names to fill the sudden need for eligibles, the political factor has un-

doubtedly entered to a very great extent into the choice of successful job seekers. The appointment of Dr. Leonard D. White as Civil Service Commissioner for the Federal Government indicates that an intensive effort will now be made to reorganize methods of selection and to provide machinery for systematic advancement of capable workers. By T. Swann Harding, *Harvard Business Review*, January, 1935, p. 157:10.

##### Possibilities of International Action in Regard to Workers' Spare Time

This article constitutes a general survey of the question of the workers' spare time in relation to the reduction of hours of work. The author first shows what has been done on national lines in some countries to centralize or coordinate the various bodies which help the worker to occupy his spare time in a pleasurable way. He then describes the activities of some international organizations and shows how the efforts of many years to correlate their activities have at last resulted in the formation, in June 1934, of the International Committee on Workers' Spare Time, the aim of which



is to coordinate and develop the work of all existing organizations in this domain. By G. Mequet. *International Labour Review*, November, 1934, p. 582:19.

#### Operation of Idle Factories by Ohio Relief Authorities for Benefit of Unemployed

Operation by the state of idle factories for the benefit of the unemployed has been undertaken on a considerable scale in Ohio. Clothing and household furnishings are being manufactured. It is expected that the

11 factories now in operation will give employment to more than 800 workers. As only part-time work is to be given to individual workers, however, the number of persons actually employed is expected to be at least 50 per cent more when the factories are operating at full capacity. The employees are selected from the relief rolls and are paid in cash for their labor. The goods are to be sold to the relief agencies throughout the state, for distribution to persons on relief. *Monthly Labor Review*, December, 1934, p. 1311:9.

#### Labor Relations: *Collective Bargaining, Employee Representation, Arbitration*

##### The Union in Industry: Some Observations on the Theory of Collective Bargaining

Professor Millis thinks that there is a case for collective dealing, though it offers no panacea. The problem is to secure the advantages of standardization and the needed pressure toward efficiency and elimination of waste, and at the same time to establish such relations between industries as will give an economical industrial structure and relatively fair employment conditions.

He thinks that employers should accept the principle of collective bargaining in good faith, and that labor organizations must be alive to their responsibilities to industry and to the consuming public as well as to their members. While militant on occasion, the author believes they must be cooperative in production. There should be a reasonable correspondence between wages in different industries if a sound economy is to be realized. Government should provide the indispensable chilled steel tools—that is, unquestionable data on wages, hours, turnover, costs, etc.—and adequate machinery for conciliation, mediation and voluntary arbitration to smooth the way for joint dealing to the end that the unsocial powerful may be held in check and that reason may be permitted to prevail. Given reason and good faith, out of this

welter of collective bargaining there may possibly emerge desirable social habits in industry. By Harry A. Millis. *The American Economic Review*, March, 1935, p. 1:13.

##### Selection of Employees' Representatives

Elections by employees to choose representatives for collective bargaining were conducted by the National Labor Board in 546 separate plants or industrial units. Over 100,000 employees participated in these elections. In 74.7 per cent of the cases trade-union representatives were chosen. By Emily Clark Brown. *Monthly Labor Review*, January, 1935, p. 1:18.

##### Collective Bargaining in 1934

In his summary of the complex developments in collective bargaining during 1934, Mr. Cowdrick starts with the three conditions respecting labor embodied in Section 7a of the National Industrial Recovery Act. He traces the early interpretations given by General Johnson, Mr. Richberg and the President himself to this legislation, then follows the Act through Senator Wagner's introduction of the Labor Disputes Act and on to the succession of the National Labor Relations Board over the old (Wagner) National Labor Board.

Summing up the conflicting precedents and huge uncoded mass of quasi-judicial

opinion on all sorts of labor questions which have accumulated throughout the year, the author says 1934 was distinctly successful for employee representation, that there was an increased burden on personnel management and that all enlightened employers have taken added precautions to avoid even the appearance of influencing employees in

their choice of representatives.

It is the author's opinion that success in industrial administration depends as it never did before upon open-mindedness and the ability to make adaptations to changing circumstances. By Edward S. Cowdrick. *The Personnel Journal*, February, 1935, p. 247:11.

## MARKETING MANAGEMENT

### When a Customer Starts to Slip

It is most essential for the sales executive to have a well-planned customer control system which automatically brings to his attention those customers who have stopped buying. A visible card index, giving information by means of movable signal tabs on the bottom margin of the card, is the most satisfactory system, according to this writer.

Surveys indicate that the most common reason why customers stop buying is the indifference of salespeople or minor misunderstandings. Generally, these "reasons" could be quickly adjusted if the sales executive would write the customer a personal letter. Several illustrative letters accompany the article. By Cameron McPherson. *American Business*, March, 1935, p. 20:5.

### The New Consumption Era

The author envisages a new era of consumption brought about by the machine age and its mass production, suggests the marketing group as the natural leader in scientifically approaching the problem of mass production-consumption, and advocates extensive thinking, a regard for the future with emphasis on competition, changing conditions and the behavior of the consumer.

The following four suggestions for initiating the human aspect of the new consumption era into present business conditions are enlarged upon in the article: the redivision of the working day to encourage the maximum consumption of goods; the reorganization of credit so

as to make installment buying scientific, and thus encourage the use of goods at the right time; a recognition of the profit-making possibilities for business at large by organizing the paternalistic aspects of human behavior in terms of speed and travel; and the reorganization of all trade organizations in order that group mentalities capable of unified effort may be developed. By Herbert W. Hess. *The American Marketing Journal*, January, 1935, p. 16:10.

### The Fight on Price Fixing Goes On

More than 60 men, representing trade associations, manufacturers, city governments, purchasing groups, code authorities, consumers' interests, retailers and wholesalers, gathered together before the National Industrial Recovery Board, for the purpose of considering the general aspects of price fixing. Many of their opinions are expressed here. By Raymond Willoughby. *Nation's Business*, March, 1935, p. 31:8.

### Functional Elements of Market Distribution

Although present day marketing economists apparently agree on seven functional elements of market distribution, namely: 1. assembly, 2. storing, 3. standardization, 4. transportation, 5. selling, 6. assumption of risk, and 7. financing, the author extends these classifications to include 120 different functional elements in 16 functional categories, thus: 1. Providing location, building and equipment, 2. Cooperation with government, 3. Legal action, 4. Administration of personnel, 5. Communi-

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cation, 6. Traveling by executives and employees in performance of their work, 7. Participation in community affairs, 8. Supplies, 9. Disposal of waste, 10. Accounting and statistical control, 11. Credits and collections, 12. Administration of cash, 13. Merchandising and Buying, 14. Publicity, 15. Selling, 16. General Management and strategy. By Franklin W. Ryan. *Harvard Business Review*, January, 1935, p. 205:20.

#### A Revaluation of Business Motives and Their Relations to Selling and Advertising

After a year's study of the motives of a hundred concerns for continuing in business during a troubled year the author lists these motives in the order of their evident importance—outwitting a competitor, stealing accounts, meeting or demolishing salesmen's rumors, meeting some chiseler, getting volume for plant, getting trade or craft prestige, meeting dictates of trade, getting some competitor's goat, getting even with a goat-getter, keeping up an appearance of alertness, trying to "pull a fast one" on the trade, carrying out a desire to perform some useful service to society, making an honest effort to make an honest profit.

Since business control has passed from production to consumption and it has become increasingly necessary to consult the desire of the public and develop a marketing technique which is sensitive to demand, a business concern, in order to operate at a profit, must revise this list of motives until "carrying out a desire to perform some useful service to society" and "making an honest effort to make an honest profit" are at the top. By Paul T. Cherington. *The American Marketing Journal*, January, 1935, p. 26:5.

#### Installment Credit Costs and the Consumer

In scrutinizing the costs of consumer credit, it is the purpose of this article, first, to compare the theory and application of the more significant calculation methods and, second, to indicate the

range of rates in common use. The survey covers one or more installment plans in each of sixty stores located in seven cities of one state—the cases and rates computed from them being, therefore, "typical" only in the sense that they represent terms judged to be most frequently used in the sale of a given commodity in a given store. It was found that the customer frequently pays relatively dearly for the privilege of extending payments beyond the conventional 30, 60 or 90 days; and the author came to the conclusion that the responsibility for clear and accurate statement of rates should fall upon the retailer because the consumer seldom has enough mathematical background to do the involved computations that would give him fair and correct costs. By LeBaron R. Foster. *The Journal of Business of the University of Chicago*, January, 1935, Part I, p. 27:19.

#### Important Legal Aspects of Selling

When is the seller liable for contracts, guarantees and statements made by the salesmen in his employ? How far does the principle of "caveat emptor" apply with respect to purchases?

These and other perplexing legal questions are answered in this article by a member of the Ohio Bar. By Leo T. Parker. *American Business*, March, 1935, p. 28:4.

#### Consumption and Merchandising under the NRA

This study represents an attempt to measure the effects of the recovery program on trade and consumption in the central Northwest. The field study was made during the spring of 1934 and includes data to the end of the first year of the recovery program. Interviews were held with representatives of approximately one hundred firms in the Twin Cities and about an equal number in several smaller cities in the state of Minnesota. In addition to the general interviews, some of the firms furnished specific accounting data.

The findings are grouped under the following headings: Subjective Reactions of

Merchants to the NRA and Other Phases of the Recovery Program; Changes in Consumption; Changes in Profits and Payrolls; The Recovery Program in Representative Small Cities of Minnesota; Detailed Analysis of Trade in the Twin Cities. By Roland S. Vaile. *University of Minnesota Studies in Economics and Business*, January, 1935, 61 pages.

#### The Psychological Sales Barometer

The psychological sales barometer is a measure of customers, not sales in volume, with the purpose of revealing whether

### Wholesaling

#### Trends in Wholesaling

In this article, which is well fortified with statistics, the author answers the following questions: 1. What has happened during the past five years to the number of wholesalers in existence and what has been the trend of their total net sales? 2. What has been the trend in the conflict between the chain store and the independent store customer of the wholesaler? 3. What has been the trend of the manufacturers' practice with respect to selling direct to retailers? 4. What has been the trend

more or fewer people are buying a given article and why they buy, rather than what or how. Results bearing on the statistical reliability of studies of this kind are summarized in this paper and are of significance to the field of market research as a method of ascertaining the influences affecting sales, particularly for such items as soaps, cigarettes, automobiles, refrigerators and radios, and of forecasting future purchasing plans in a given sales area. By Henry C. Link and Irving Lorge. *Harvard Business Review*, January, 1935, p. 193:12.

with respect to the development and growth of voluntary chains? 5. What has been the trend with respect to the general as against the specialty wholesaler? 6. During the past half decade, have wholesalers increased or decreased the number of items which they stock? 7. What is the status of selective selling in the wholesale field? 8. What has been the trend of wholesalers expenses since 1929? 9. What has been the tendency with respect to jobber ownership of retail outlets? By R. S. Alexander. *The American Marketing Journal*, January, 1935, p. 59:8.

### Books Received

**The Business Man and His Health.** By Jesse Feiring Williams. Whittlesey House, McGraw-Hill Book Co., New York, 1932. 175 pages. \$2.00.

**Applied Economics.** By Raymond T. Bye and William W. Hewett. F. S. Crofts & Co., New York, 1934 (sec. ed. revised). 693 pages.

**Accounting Evolution to 1900.** By A. C. Littleton. American Institute Publishing Co., New York, 1933. 368 pages. \$5.00.

**The Soviet Worker.** By Joseph Freeman. Liveright Inc., New York, 1932. 408 pages. \$2.50.

**Workmen's Compensation.** By Sir John Collie. Edward Arnold & Co., London, 1933. 160 pages. \$2.75.

**Psychology for Executives.** By Elliott Dunlap Smith. Harper & Brothers, New York, 1934. 311 pages. \$3.50. (Revised Edition.)

**The Cultural Significance of Accounts.** By D. R. Scott. Henry Holt and Company, New York, 1931. 351 pages. \$2.50.

**American Treasure and the Price Revolution in Spain, 1501-1650.** By Earl J. Hamilton. Harvard University Press, Cambridge, 1934. 403 pages. \$4.50.

**American Agricultural Policy.** By Persia Crawford Campbell. P. S. King & Son, Ltd., London, 1933. 304 pages. 10s. 6d.

**The Inflation Folly.** By Henry E. Foelske. Christopher Publishing House, Boston, 1933. 61 pages. \$1.00.



**The Problem of Liquor Control.** Selected Articles Compiled by Julia E. Johnsen. H. W. Wilson Company, New York, 1934. 407 pages. \$2.40.

**Experimental Television.** By A. Frederick Collins. Lothrop, Lee & Shepard Co., Boston, 1932. 313 pages. \$2.50.

**Manual of Modern Advertising.** By Kenneth Goode. Greenberg Publisher, Inc., New York, 1932. 497 pages. \$4.00.

**Taxation of Motor Vehicle Transportation.** National Industrial Conference Board, Inc., New York, 1933. 196 pages. \$2.50.

## Survey of Books for Executives

**How to Run Better Sales Contests.** By M. Zenn Kaufman. Harper & Brothers, New York, 1935. 222 pages. \$3.50.

As a consultant to hundreds of companies in the running of sales contests, Mr. Kaufman has had broad, practical experience which he now brings to bear in writing this creative manual, designed to supply and stimulate new methods and new combinations of methods which will put over a good contest. While interest in effective sales contests is perennial, he feels it is at a new all-time high today because of the acknowledged importance of offsetting the marketing resistances now faced.

The author covers the matter of timing a contest, selecting a contest theme, and making up a scoring plan, and emphasizes the necessity for a follow-up. He concludes with a generous chapter of case histories. The book is amply illustrated with facsimile reproductions of printed material for contest use.

**Labor, Industry and Government.** By Matthew Woll. D. Appleton-Century Company, New York, 1935. 340 pages. \$2.00.

Beginning with the legal restrictions on labor established in the Massachusetts Bay Colony in 1630 in the form of wage limitations laid on joiners and sawyers, Mr. Woll traces the labor movement through the early stages of its development up to the New Deal.

The American Federation of Labor, in the author's opinion, has three major prin-

ciples: that of voluntary action, that of emphasis on economic organization rather than on political power, and that of the mutuality of interest between capital and labor.

He is for the craft or industrial union as against the company union; fears Fascism in any guise; is not entirely reassured by the New Deal. The book includes significant chapters on collective bargaining, majority and minority representation, the codification of industry, social insurance, and an interesting comparison between the American and international labor movements.

**The Battle for Democracy.** By Rexford Guy Tugwell. Columbia University Press, New York, 1935. 330 pages. \$3.00.

Our economic course, according to the author, has carried us from the era of economic development to the necessity for economic maintenance, where the inextricable interdependence of its multiple factors demands a new control, a control designed to conserve their ability to function, a control to conserve and maintain our economic existence. He therefore argues for a resurgence of the cooperative impulse.

Mr. Tugwell discusses the possibilities of the Tennessee basin as an experiment in the decentralization of industry; the great advance toward social justice achieved by putting gold exclusively into the Government's possession; new controls for business with proper scope left for initiative and invention; new strength from the soil,

to be found under the Erosion Control Service, the Subsistence Homesteads Division, the Land Management Company and the Tennessee Valley Authority; native *versus* foreign wines; life as a long-term enterprise; social responsibility; consumers and the New Deal; relief and reconstruction.

**High-Level Consumption: Its Behavior; Its Consequences.** By William H. Lough and Martin R. Gainsbrugh. McGraw-Hill Book Company, New York, 1935. 345 pages. \$4.00.

How much have American consumers spent in past years for each of 249 different items? Have installment accounts and personal loans enlarged consumers' spending power? Are American habits of living and spending markedly different from those of European consumers? Is it now practicable to formulate an overall price-level index of consumers' purchases? Can we look forward to a balanced, stabilized economy in spite of the instabilities of high-level consumption?

All these pertinent questions and many others are answered by Mr. Lough in this comprehensive and factual study, designed for professional statisticians, economists and other executives whose responsibility it is to grapple with basic problems of business strategy. Much of this book is devoted to statistical tabulations made by Mr. Gainsbrugh. Commercial research and promotional organizations, advertising agencies and merchants will find data on which to base appraisals of potential markets.

**Railway Nationalization in Canada.** By Leslie T. Fournier. The Macmillan Company of Canada, Limited, Toronto, 1935. 358 pages. \$3.50.

The creation of the Canadian National Railways marked the beginning of an experiment that was more or less unique in railway history. This consolidated railway system—operating 24,000 miles of line—runs from coast to coast in a line

parallel to the Canadian Pacific—operating 17,000 miles of line—with which it competes at every important center of business. Mr. Fournier tells the story of the nationalization of railways in Canada, analyzes the operating and financial results and discusses the outstanding problems that have developed in the course of the last fifteen years and their proposed remedies.

This study is the fifth of a series being published under the auspices of the International Finance Section of the Department of Economics and Social Institutions in Princeton University, Princeton, N. J., from which the publishers say United States copies should be obtained.

**Collective Bargaining.** Compiled by Julia E. Johnsen. The Reference Shelf, Vol. X, No. 1. H. W. Wilson Company, New York, 1935. 261 pages. 90 cents.

The aim of this book has been to cover the more pertinent up-to-date discussions of collective bargaining and includes articles by such men as Sumner H. Slichter, William M. Leiserson, Donald Richberg, H. A. Marquand, Clarence S. Darrow and Norman Thomas.

Material is grouped for the special convenience of debaters and offers, in addition to selected reprints, a comprehensive bibliography and a brief.

**The Future of Monetary Policy: A Report on International Monetary Problems** by a group of the Royal Institute of International Affairs. Oxford University Press, New York, 1935. 219 pages. \$4.00.

This book deals with such vital questions as whether depressions can be avoided, whether foreign lending pays, the significance of an international monetary standard, the interaction of monetary systems, and the aspects of monetary reconstruction. While the importance of the whole basis of international and national economy in any scheme of stabilization is recognized, the group concludes that, though effective progress is likely to be slow,

policies should be directed slowly and steadily toward the building up of conditions in which an effectively working international monetary standard is practicable.

**Mechanization in Industry.** By Harry Jerome. National Bureau of Economic Research, New York, 1935. 484 pages. \$3.50.

The characteristics and consequences of the mechanization process with respect to the whole working of the economic system have been traced in this study. No attempt has been made to appraise the relative merits of machine and handicraft civilizations, the author's concern being with the nature and significance of current changes in the degree of mechanization. Dr. Jerome thinks that a continuing increase in mechanization at a moderate pace may be expected; that the danger of an uncontrollably rapid mechanization is no more likely than a near cessation of mechanical progress; and that within the limited range of fluctuations in the rate of mechanization, there are some ill effects requiring thoughtful consideration.

**Some Phases of Labor Relations in Virginia.** By George Talmadge Starnes and John E. Hamm. D. Appleton-Century Company, New York, 1934. 204 pages. \$2.50.

This book, a monograph of the University of Virginia Institute for Research in the Social Sciences, is the result of a comprehensive investigation into the relationships between employers and labor in three important industries in the Commonwealth of Virginia—rayon manufacturing, re-handling of tobacco, and tobacco manufacturing—and is a statistical history of trade unionism in the state down to the year 1932.

The rayon industry was studied because it is a recent importation to Virginia and introduced policies and methods of dealing with employees which were determined outside the boundaries of the Commonwealth and which in many respects are in

absolute contrast to the methods of the native industries. The tobacco handling industry, of course, was selected because it employs such a large body of negroes; while the tobacco manufacturing industry, employing more labor than the majority of other Virginian industries, was of interest because it employs few colored workers and at the same time has less modern labor policies than the rayon factories.

**Balances of Payments 1933.** The League of Nations, Geneva, through the World Peace Foundation, Boston, 1934. 188 pages. \$1.50.

This is a statistical book of reference on international accounts and includes an analysis of capital movements up to September, 1934, for 34 countries. Attention is called to the fact that the statements most nearly represent a current account of international money transactions booked and that it is open to doubt whether they should properly be called balance of payments statements, the term being used in the absence of a generally accepted term expressing the true nature of the accounts. The book touches upon triangular and multilateral international business transactions; the price of capital, interest and dividends; emigrants' remittances; and tourists' expenditures.

**The Chart of Plenty.** By Harold Loeb. The Viking Press, New York, 1935. 180 pages. \$2.50.

In the spring of 1934 the Federal Government established the National Survey of Potential Product Capacity. Seventy engineers and economists under the direction of Harold Loeb assembled material and analyzed the findings with surprising results. From a consideration of possible production (plant capacity) and possible consumption (budget of need), measured in terms of accomplished production in 1929 (effectively demanded and supplied), their conclusions were drawn, viz: That poverty prevails in the United States, and



always has, but that it need not exist in the future because an economy of abundance would result if production were directed toward the satisfaction of human needs and reasonable wants and restrained only by physical factors and the state of our knowledge.

**What Makes People Buy.** By Donald A. Laird. McGraw-Hill Book Company, New York, 1935. 230 pages. \$2.50.

Mr. Laird discusses what goes on deep down in the average customer's head and what the customer has on the top layers of his mind as well. He thinks the customer does not himself realize the chasm between his desires and his actual needs, and sets about to give the salesman this priceless insight. The customer's sensory impressions, his desire to be more adequate and to buy more energy, his desire for life—all his basic, motivating impulses—are taken into consideration.

This book brings the new advances in psychology from the scientific laboratories and translates them into practical applications of value to the salesman in shaping his work and personality.

**Executive Guidance of Industrial Relations: An Analysis of the Experience of Twenty-Five Companies.** By C. Canby Balderston. University of Pennsylvania Press, Philadelphia, 1935. 435 pages. \$3.75.

"The best in the relations between employer and employee is the focal point of this study. In it we have attempted to describe and explain, partly by the case method, the nature of personnel management as it has evolved in companies willing to pioneer." This is the author's statement of his purpose. The study grew out of a competition in 1931 in which prizes were provided by Mr. B. C. Forbes for company plans designed to produce the soundest worker-management relations. The first prize was awarded to the Leeds & Northrup Company and was donated by Mr. Morris E. Leeds to finance a study of the theories and experience of pioneers in personnel.

This contribution was augmented by agencies within the University of Pennsylvania.

To the prize winners in the contest, Leeds & Northrup, Procter & Gamble, General Electric, and Westinghouse Electric & Manufacturing Company, were added twenty-one others well known for their work in industrial relations. Some had participated in the contest; others had not. They were chosen with regard to a distribution of samples by locality, industry, and size but the sample is biased with respect to size, as the author points out, since two-thirds of them are among the two hundred largest corporations in the United States. The personnel program of each of these companies is described.

Dr. Balderston comments in his introduction on the great need for objective analysis of personnel policies and work and the equally great difficulty of making such analysis and appraisal. It should be said that he has done a remarkably fine piece of work in the analytic half of his book. He takes up first "factors underlying personnel decisions" and deals here with characteristics of industry such as age, financial strength, seat of real authority and other equally practical factors. There follow a selected composite program; an appraisal of methods and conflicting concepts; an analysis of the industries represented in the case studies; and a chapter on personnel standards which gives various available data such as average costs. There are so many unusually interesting sections in this part of the book that one hesitates to single out one for comment, but it seems that the section on "conflicting interests" would be of great help in clarifying thinking on these points.

Altogether the volume is one which personnel managers and executives interested in modern management methods can use to great advantage in finding out what other companies are doing and in checking the work of their own companies. It is also a real contribution to thinking in the field of and their underlying philosophy.

L. P.